OhioEPA
State of Ohio Environmental Protection Agency
Northeast District Office
2110 E. Aurora Road
Twinsburg, Ohio 44087-1969
(330) 425-9171 FAX (330) 487-0769

George V. Voinovich
Governor

May 29, 1998

RE: Master Metals, Inc. Site - Engineering Evaluation and Cost analysis Report

Mr. Ababi Harris
U.S. EPA Region 5
77 W. Jackson Blvd. SR-6J
Chicago, IL 60604-3590

Dear Mr. Harris:

The Engineering Evaluation and Cost analysis (EE/CA) Report for the Master Metals Site in Cleveland, Ohio was received by this office on March 30, 1998.

Ohio EPA has the following general comments on the report. The comments are demarcated into 3 parts. The first part (1) is related to the choice of the lead clean up criterion and streamlined risk assessment. The second part (2) addresses the remedial alternatives proposed. Additional general comments are provided in part 3.

1. Streamlined Risk Evaluation

1.A. Choice of the Lead Clean Up Criterion:

In Section 2.5 of the EE/CA, a Streamlined Risk Evaluation was presented that identified an industrial clean up criterion of 2,800 mg/kg of lead. This value was obtained from the Voluntary Action Program (VAP) regulations, specifically Ohio Administrative Code (OAC) 3745-300-08(B)(3)(h). Ohio EPA does not agree with the use of the generic VAP direct contact soil standard for industrial sites at this specific site for the following technical reasons:

(I) The VAP soil standard was derived using an approach proposed by Stern (1994) based on the assumption that under steady-state conditions, changes in blood lead concentrations could be directly attributed to the changes in lead concentration in exposure media, in this case soil. A generic numeric lead standard was calculated such that exposures to lead by soil and dust ingestion by adults in an industrial setting would have a *de minimis* contribution to the blood lead concentration of a developing fetus of an industrial worker. The application of a generic resulting *de minimis* increase or incremental increase may not be applicable at this site, given the context of the exposure scenario, since *de minimis* is determined relative to current blood lead levels. Historic receptors exposed to facility emissions over time may have blood lead levels elevated above the average blood lead levels selected for input in the calculations. Thus, the other factors, including the past history of the population's exposure to lead, initial soil lead concentration and dust lead loading, and the magnitude of other sources of lead exposure relative to the soil may be significant sources of uncertainty at this site. This may compromise the protectiveness of the generic industrial land use direct contact levels.

(ii) Further, at this site, no evidence has been presented to support the assumption that an alteration of (the risk-based goal of) $\pm$ 2 ug/dL in blood lead concentrations in the exposed population will not have negative long-term health consequences. Please note that the nature of the long-term consequences may be a function of the initial blood lead level; at this site this may be a significant source of uncertainty. The selected measurement endpoint of a blood lead level increment of 2.0 ug/dL may thus pose a differing level of lead toxicity to the exposed population, owing to the factors discussed above. It is therefore uncertain whether the VAP assessment endpoint (that 90% of the population will not be exposed to a greater than acceptable risk) will be achieved.

(iii) The weighting factors applied in VAP to partition exposures between outdoor soil ingestion and indoor soil-derived dust ingestion need to be substantiated on a site-specific basis, since indoor dust may contain constituents other than dust from outdoor soil. For additional information on the weighting factors (fraction of indoor dust derived from soil, F, and ratio of lead concentration in indoor dust relative to concentration in the soil, S), please refer to the VAP technical support documentation.

(iv) With reference to the source and the particle size speciation of lead, the absolute absorption factor has both bioavailability and absorption implicit in the term. Depending on the source and particle size speciation of lead, the lead at this site could be towards the upper end of the bioavailable lead estimates. Therefore, unless data are available to support the distribution of meal-weighted absorption factors, a point estimate for the absolute absorption factor may be more appropriate at this site.

(v) The subterms used in VAP to weight exposures into the fraction of time spent in contaminated areas on the site are inappropriate at this specific site. Unless supported by site-specific data (describing the range of activity patterns at the site and the spatial variability of lead concentrations, both of which are linked in the VAP to operation and maintenance mechanisms) substantiating the range of distributions chosen, this exposure factor should be set to 1.0, unlike in the VAP methodology.

1.B. Regulatory Compliance and Programmatic Issues:

Programmatic considerations may preclude the use of the VAP generic direct contact lead standard at this particular site. The VAP clean up criterion is associated with a specific land use and point of compliance either minimally specified in the rules or identified by the Certified Professional issuing the No Further Action (NFA) letter. With respect to on-site compliance, both the land use and point of compliance are specified in deed restrictions that run with the property and identified in the Covenant Not to Sue (CNS) issued by Ohio EPA through the VAP process. If Operation and Maintenance (O&Ms) are factored into the process such that exposure pathways are rendered incomplete, this is also identified in the NFA and finalized in the CNS. Future use of the property, from the standpoint of both the type of use (industrial) and the point of compliance is thus restricted by enforceable mechanisms. None of these regulatory mechanisms that are underpinnings of the technical substantiation of the standards, as described previously, and safeguard the receptor appear

to have been invoked in the same manner at this site. The heterogeneity of the lead levels at depth, as identified in the EE/CA Data Report is of specific concern in this context.

In particular, the enforceability of the depth-related off-site point of compliance is questionable. The mechanism by which receptor contact would be prevented at the chosen off-site point of compliance has not been specified and the ability of the parties to the order to enforce deed restrictions limiting receptor contact below the point of compliance (based on depth, and not soil lead level) on property outside the boundaries of the Master Metals property has not been clarified.

Therefore, Ohio EPA cannot acquiesce at this site in the cross-programmatic utilization of criteria and point of compliance developed for specific programs, without the accompanying protective criteria associated with the original program.

1.C. Recommendations:

Based on the technical site-specific considerations listed in comments 1.A., the use of the generic direct contact levels for lead as derived for the VAP, using the Stern methodology, at this site may not be appropriate.

Instead, U.S. EPA's recommended Adult Lead Interim approach for assessing non-residential adult risks may be more appropriate; the deterministic TRW methodology is based on a plausible range of parameter values that reflect the uncertainties associated with lead risk assessment. For additional information on the methodology and assumptions to be utilized, please refer to U.S. EPA's 1996 documentation on this approach. Again, it should be emphasized that the scenario to be considered at the site is critical, and differing target remediation goals can be calculated depending on whether a routine industrial worker or a construction/ excavation worker is considered. Conservative site-specific exposure assumptions such as the exposure frequency and averaging time should be used, unless alternative exposure factors can be justified in a site-specific context, including with respect to future site use. The percentile of the population that is protected by the risk goal chosen needs to be explicitly identified.

If, however, additional site-specific information is presented on the baseline blood lead levels of the subpopulation such that the possible exceeedances of *de minimis* concerns described in previous comments are addressed, the approach proposed by Stern (1994) could be utilized, incorporating the assumptions proposed by U.S. EPA's Technical Review Working (TRW) Group for Lead. The following considerations may need to be addressed in the context of the distributional inputs in addition to those listed in comment 1.A.:

*A site-specific determination should be made on whether data exist to support the estimation of the mass fraction of soil in dust at this site, prior to the distributional choices for the fraction of indoor dust derived from soil and the ratio of lead concentration in the indoor dust relative to soil being finalized.

* The time-weighted rate of daily soil intake proposed by Stern (1994) or a default point estimate for adult soil ingestion rate may be applicable at this site. Further, as discussed above, site-specific data should be provided to support the use of the distribution for the absorption fraction from soil.

* With reference to the implicit assumption in the calculation of the lead exposure by dust ingestion that unsaved samples were utilized, the analytical methodology to account for the enrichment factor should also be specified; i.e., it should be clarified whether an enrichment factor will be incorporated in the calculations or whether the soil samples will be sieved to exclude particle sizes greater than 250 um, (thus eliminating consideration of the enrichment factor variable).

* Finally, different risk-based soil levels may need to be established for the different exposure scenarios (example, construction/ excavation versus routine industrial worker) as a function of the differing soil and dust ingestion rate and exposure frequency. The most protective of the clean up criteria need to be used, unless specific areas of the site can be demonstrated to be accessed only by specific receptor populations.

2. Proposed Removal Action Alternatives:

2.A. Recommended Alternative:

The alternatives focus on off-site (perimeter) removal of vertical contamination and the elimination of the ingestion and inhalation pathways on-site. Alternative 2 which basically excavates off-site soil to a depth of 2 feet or the lead remediation criterion specified, consolidates this material on-site, backfills all excavated/ subgrade areas on-site to grade and then places 2 feet of clean fill on-site has been recommended in the EE/CA Report as the preferred alternative. While Ohio EPA is receptive to the constraints imposed by the nature of the site, several issues of concern associated with this alternative are discussed below, and should be addressed. Further, it should be clearly understood by all stakeholders that future use of the site should be restricted based on the remedial alternative chosen and the mechanisms in place to limit receptor exposure below the specified point of compliance.

(I) Ohio EPA has reservations regarding the on-site consolidation of off-site material, particularly that which might have the potential to test as toxic by the Toxic Waste Characterization Test (TCLP). Typically, a distinction is made for sites in Ohio between reconsolidation on site, and placement on site and the Agency has in the past rejected proposals that Superfund sites become collection points for additional wastes because they are already contaminated. Further, DERR-Central Office (CO) technical personnel believe that off-site material (that fails the TCLP) is hazardous waste as described in OAC 3745-51-02(C)(1). On-site placement of such hazardous waste may constitute creation of a new hazardous waste landfill, which would need to meet the siting criteria and design criteria listed in the regulations.

Therefore, Ohio EPA recommends that the off-site material be tested for the toxic characteristic prior to disposal. If the material fails the TCLP, one option that could be considered is the stabilization of the material to render it non-characteristic. If the material is stabilized and rendered non-hazardous, an array of site-specific disposal alternatives could be considered based on resource efficiencies.

(ii) Although the proposed soil cover of 2 feet over the on-site material is acceptable, provided it is accompanied by deed restrictions limiting future use to industrial scenarios and restricting excavation below the cover depth, Ohio EPA would therefore like to recommend a modified remedial alternative of 4 to 5 feet of clean soil cover. The rationale for this is that although community acceptance has not been explicitly considered as a criteria in the development of remedial alternatives, it appears, based on input from community officials, that the proposed 2 feet of clean cover might severely restrict future reuse of the site. Therefore, Ohio EPA would therefore like to recommend that a modified alternative of 4 to 5 feet of clean soil cover be considered as a remedial alternative at this stage in the process, such that utilities placement and routine construction activities that could be associated with future reuse of the site are facilitated. This acceptance is premised on the understanding that the exposure route at this site is limited to direct-contact alone. (Ohio EPA typically does not accept the use of soil covers at sites with leachate or ground water impact problems.)

(iii) The acceptance of the soil cover is predicated on the condition that if any excavation (such as pipe trenching) is conducted at a later date, it should be ensured that contaminated soil is not made available for chronic surficial exposure within the soil horizon chosen as the point of compliance. Ohio EPA-CO recommends that future excavation be conducted to meet the requirements of OAC 3734.02(H), and should only be engaged in with prior authorization from Ohio EPA.

(iv) Ohio EPA would also recommend that, in the interests of protecting the human health, in areas of the site where the demarcation between the chosen depth of clean fill and contaminated soil is not readily discernible (for example, in the non-concreted areas of the site), a permeable geotextile barrier be placed between the clean fill cover and the contaminated soil, to limit their inadvertent mixing at a future date.

(v) The soil cover should be designed such that proper storm water runoff is ensured and gross erosion is prevented. Further, the a good grass cover should be required in the Operation and Maintenance Plan unless the future use of the site precludes this possibility.

(vi) Finally, a soil cover should only be used in areas where future vehicular traffic will be limited to avoid the formation of deep tire tracks and ruts, and the eventual compromising of the clean fill soil horizon. Please note that the Scope of Work attached to the Orders requires an evaluation of the adequacy and reliability of the controls, specifically the response activities necessary to sustain the integrity of a removal action following its conclusion. As stated in a previous comment, future use of the site is a consideration that may need to be factored into the remedial alternative selection process.

2.B. Other Remedial Alternative Issues:

(i) Please substantiate the horizontal off-site limits identified in all the remedial alternative proposals. Specifically, although the sampling at Quigley Avenue was used as a strategic management decision point, please clarify why the area in between the western off-site limit delineated in the proposals and Quigley Avenue was excluded from evaluation.

(ii) With reference to the other remedial alternatives proposed, please note that Ohio EPA has generally rejected asphalt covers at DERR sites due to concerns related to long-term durability. If asphalt covers are accepted for site-specific reasons, DERR-CO has recommended a layer of clean fill is required below the asphalt, to provide additional protection at breaks in the asphalt; placement of a geotextile barrier between the clean and contaminated soil layers has also been recommended. Further, as in the case of the soil cover, enforceable deed restrictions are necessary to prevent incursions into contaminated soils.

3. General Comments:

(I) (page 6): Please clarify the rationale for the choice of the quarter-mile radius in the initial part of the discussion of surrounding land use as opposed to the choice of the 1-mile radius in the discussion on surrounding populations. The two parameters may need to be correlated and the proximity of the nearest residential areas may need to be indicated.

(ii) (page 12): Please add language in the second paragraph in the discussion of the U.S. EPA air monitoring study linking the conclusions arrived at in the report to the location of the air sampler locations. As stated in previous comments on Master Metals reports, Ohio EPA would appreciate clarification that due to the focused nature of the U.S. EPA study, no monitoring devices were placed between Master Metals and residential areas to the northwest, and therefore the general conclusions drawn in the U.S. EPA report need not necessarily be applicable across the board.

(iii) (page 12): Please provide data or references to substantiate the statement that the off-site surface soil samples collected northwest and west of the site "are not atypical (lead) concentrations in urban areas that are heavily traveled by automobile traffic".

(iv) (page 12, page 15): Given that no (historical or current) data on blood lead levels in the population in the proximity of the site have been provided, it cannot be stated that "there are no airborne lead impacts attributable to Master metals in the vicinity of Quigley Avenue which adversely impacted the population". Please provide such data or modify the sentence to reflect data availability. Ohio EPA would agree that there is no current potential for impact on nearby residential areas, but historical impact has not been evaluated; page 15 needs to be modified to reflect this.

(v) (page 14, page 15): Although ground water associated with the site may not be a current resource, please note that the National Contingency Plan (NCP) explicitly requires ground water to be evaluated as a future resource. Unless enforceable mechanisms and deed restrictions related to the

use of ground water are imposed, the future ground water receptor needs to be addressed. This can be done in terms of potential contaminant levels projected.

(vi) (page 15): Although lead is the major contaminant at the site, the statement in the first paragraph of Section 2.3.6 that "lead is the only hazardous constituent of concern at the MMI site" needs to be modified to reflect the levels of arsenic detected.

(vii) (page 20): In view of the remedial alternatives discussed, please refer to OAC 3745-66-19 and OAC 3745-55-19 for the notification requirements to local land authorities when hazardous waste facilities are closed; these regulations are considered ARARs in Ohio for Superfund remediation that leaves hazardous material on-site.

(viii) (Appendix A): Please note that the specific section (III) detailing the development of the VAP generic numerical standards for lead has been omitted, at least from the copy of the EE/CA report provided to Ohio EPA.

Please let me know if I can clarify any of my comments.

Sincerely,

Sheila Abraham

Sheila Abraham
Environmental Specialist

SA:cl

cc: Rod Beals, Ohio EPA, DERR-NEDO
Tim Christman, Ohio EPA, DERR-CO
Mike DeRosa, ENTACT
Bob Princic, Ohio EPA, DERR-NEDO